

What is claimed is:

1. A method for manufacturing a semiconductor device comprising the steps of:  
forming a first conductive film which serves as a barrier so as to be in contact  
with an organic insulating film in which an opening portion is formed;

5        forming a second conductive film including aluminum so as to be in contact  
with the first conductive film; and

flattening the second conductive film by selectively performing a heat  
treatment under reduced pressure or in normal pressure.

10        2. A method for manufacturing a semiconductor device according to claim 1,  
from the steps of forming the first and the second conductive film to the steps of  
selectively performing the heat treatment can be sequentially carried out without being  
exposed to atmosphere.

15        3. A method for manufacturing a semiconductor device according to claim 1,  
irradiation of light from ultraviolet to infrared which use lamp is used as the selective  
heat treatment.

20        4. A method for manufacturing a semiconductor device according to claim 1,  
gas laser irradiation or solid-state laser irradiation which performs pulsed oscillation or  
continuous oscillation is performed as the selective heat treatment.

5. A method for manufacturing a semiconductor device according to claim 1,  
the organic insulating film includes one kind selected from acryl, polyimide, polyamide,

polyimidamide, epoxyacryl, benzocyclobutene, parylene and flare.

6. A method for manufacturing a semiconductor device according to claim 1,  
the organic insulating film includes a skeleton structure with a bond of silicon (Si) and  
5 oxygen (O) and includes at least hydrogen in the substituent, or a film at least including  
a kind of a fluorine, an alkyl group, and aromatic hydrocarbon in the substituent.

7. A method for manufacturing a semiconductor device according to claim 1, a  
film including titanium, tantalum, tungsten, or silicon is formed as the first conductive  
10 film.

8. A method for manufacturing a semiconductor device according to claim 1  
comprising the steps of:

forming a third conductive film over the second conductive film; and

15 forming a film including one kind or plural kinds of element selected from  
germanium, tin, gallium, zinc, lead, indium, or scandium.

9. A method for manufacturing a semiconductor device comprising the steps of:

forming a nitride film so as to be in contact with an organic insulating film in

20 which an opening portion is formed;

patterning the nitride film so that an under layer of the organic insulating film  
is exposed in the opening portion;

forming a first conductive film which serves as a barrier so as to be in contact  
with the nitride film;

forming a second conductive film including aluminum so as to be in contact with the first conductive film; and

flattening the second conductive film by selectively performing a heat treatment under reduced pressure or in normal pressure.

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10. A method for manufacturing a semiconductor device according to claim 9, from the steps of forming the first and the second conductive film to the steps of selectively performing the heat treatment can be sequentially carried out without being exposed to atmosphere.

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11. A method for manufacturing a semiconductor device according to claim 9, irradiation of light from ultraviolet to infrared which use lamp is used as the selective heat treatment.

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12. A method for manufacturing a semiconductor device according to claim 9, Then, gas laser irradiation or solid-state laser irradiation which performs pulsed oscillation or continuous oscillation is performed as the selective heat treatment.

13. A method for manufacturing a semiconductor device according to claim 9,  
20 the organic insulating film includes one kind selected from acryl, polyimide, polyamide, polyimidamide, epoxyacryl, benzocyclobutene, parylene and flare.

14. A method for manufacturing a semiconductor device according to claim 9, the organic insulating film includes a skeleton structure with a bond of silicon (Si) and

oxygen (O) and includes at least hydrogen in the substituent, or a film at least including a kind of a fluorine, an alkyl group, and aromatic hydrocarbon in the substituent.

15. A method for manufacturing a semiconductor device according to claim 9,  
5 a film including titanium, tantalum, tungsten, or silicon is formed as the first conductive film.

16. A method for manufacturing a semiconductor device according to claim 9  
comprising the steps of:  
10 forming a third conductive film over the second conductive film; and  
forming a film including one kind or plural kinds of element selected from  
germanium, tin, gallium, zinc, lead, indium, or scandium.